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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,787	03/09/2004	Ralph D. Edson	03-10092	5859

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EXAMINER	
RO, BENTSU	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H:A

Office Action Summary	Application No.	Applicant(s)	
	10/797,787	EDSON ET AL.	
	Examiner	Art Unit	
	Bentsu Ro	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,18-20,22,23 and 25-27* is/are rejected.

7)☒ Claim(s) *6-17,21 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/20/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL REJECTION

1. Claims 1-5, 20, 22, 23 and 25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Miller US Patent No. 6,832,119.

Miller teaches a method and system for torque ripple compensation (i.e. damping). Miller's invention is described in a high level architecture type description, rather than a low level physical design. Therefore, Miller does not specifically show the physical devices of the embodiment, such as a transducer. However, these devices are symbolically embodied in the system.

Claims read onto Miller's teaching as follows:

The claims:	**Miller's teaching:**
1. A damped system for moving a load, comprising:	the title "Methods and Systems for Torque Ripple Compensation", wherein the words "Torque Ripple Compensation" is a damped system; also see column 1, line 48, the words "to provide damping for transient disturbance"; in Fig. 1, the plant 30 has an output shaft, labeled in Fig. 1 as "OUTPUT", this output shaft is connected to a load for moving the load; the load can be a semiconductor wafer handling mechanism, see column 1, lines 14-20;
an electric motor having a damping means;	Fig. 1 shows a plant 30, which plant 30 is a motor, see column 3, lines 9-10; the pulse width modulation (PWM) control is a damping means because, by controlling PWM, the disturbance can be compensated;

a mechanical connection between the electric motor and the load;	the motor output shaft is connected to the semiconductor wafer handling mechanism as explained previously;
a transducer to sense an indicator related to load force or torque and produce a feedback signal; and	Fig. 1 shows a "**y**" signal and a "**y'** " signal, the y and y' signals are output signals from at least one transducer; the transducer is therefore inside the plant 30; it is noted that the y' signal is a derivative of y signal; in the text, Miller repeatedly states "torque" and "torque ripple", thus the y and y' signals must be related to a load torque; the y and y' signals are used in a feedback control loop, see Fig. 1; thus, the y and y' signals are feedback signals;
a controller connected to the electric motor	the circuit of Fig. 1 is a controller (excluding the plant 30), the controller is connected to the motor 30;
and providing a motor control signal	the control input 32, labeled as "u" signal is a motor control signal;
to move the load to a desired position,	the semiconductor wafer handling mechanism includes moving the semiconductor wafer to a desired position,
and connected to the transducer for receiving the feedback signal	the transducer signals y and y' are received by the control circuit of Fig. 1 ;
and adjusting the motor control signal based on the feedback signal	Fig. 1 shows two feedback loops, one is the adaptive filter 28; the adaptive filter 28 receives an error signal e, and provides correction signal s to a summing circuit; the other one is an estimator 22 with state feedback gain controller 24; this feedback loop receives the same error signal e and provides another correction signal to the summing circuit, as clearly shown in Fig. 1;

whereby disturbances to the position of the load are damped.	the summing circuit provides adjusted motor control signal u to the motor 30; column 1, lines 45-50 states **"The control system includes a plant to be controlled, a fixed feedback controller configured to provide damping for transient disturbances, and an adaptive controller configured to reject steady disturbances."**
2. The damped system of claim 1, wherein the electric motor is a servo motor comprising an electromagnetic actuator.	all position control motors are servo motor; further, the motor is used to actuate a moving element, such as a manipulator, based on electromagnetic principle, (stator-rotor magnetic interaction), thus, the servo motor per se is an electromagnetic actuator;
3. The damped system of claim 1, wherein the transducer is one of a force transducer, a torque transducer, and an accelerometer.	Miller repeatedly uses the words 'torque' and 'torque ripple', therefore, the transducer can be any one of a force transducer, a torque transducer, and an accelerometer.
4. The damped system of claim 1, wherein the transducer is a current sensor.	motor current relates to motor torque, therefore, in most practical applications, a motor current sensor is used to indicate the motor torque; applicant should see most textbooks of electric machinery.
5. The damped system of claim 3, further comprising a high pass filter which filters the feedback signals.	Fig. 2 shows an error filter 50 and a FIR filter 46; Fig. 1 shows an adaptive filter 28; it is noted that the phrase "high pass" is a relative term; for example, in a telephone

	communication system, a voice signal is in the range 20 Hz-20KHz, a filter of 30 KHz used in the telephone system is a high pass filter; however, in a data transmission system, such as in PCM (pulse code modulation), FDM (frequency division multiplexing), TDM (time division multiplexing), the bit transmitting rate can be as high as 10 Gb/s (giga-bits per second), in such a system, the high pass filter should be in the range of GHz; the 30 KHz high pass filter in the telephone now becomes a low pass filter in the data transmission system; thus, the phrase "high pass" filter is a relative term; one can call the filters of Miller's as high pass filters.
20.	A method claim having the same subject matters as that of the apparatus claim 1, discussion is omitted.
22 and 23.	The subject matters of these claims have been explained with respect to claims 1-5, no further discussion is needed.
25-27.	the motor drives the actuator, for example, the motor drives a wafer handling machine, see column 1, line 17; thus, the motor forms a portion of the actuator; the motor has mass and therefore, the motor stabilizes the mechanical connection at a fixed orientation when the load is coupled to the mechanical connection and when the load is moved to the desired position; it is vital to noted that claims 25-27 set forth no structure limitation, claims 25-27

	only describe a general feature of any damping system.

The examiner would like to call applicant's attention that claim 27 depends upon claim 1, not depend upon claim 22 as alleged. See applicant's REMARKS on page 11.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller.

Regarding claim 18, all servomotor has a gear train or power train. The input/output ratio of the power train depends on a desired output torque. The ratio can be any number from 1:1 to 1:1000 or more.

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Amann et al US Patent No. 6,720,746.

Miller's damp compensation control can be used with any systems that requires a motor damp control. For example, a vehicle requires a torque oscillation damping as taught by Amann et al. Thus, Miller's control can be used with the vehicle of Amann et al.

5. Claims 6-17, 21 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Applicant's remarks have been fully considered, but they are not convincing. Applicant basically argues that Miller does not teach "providing a motor control signal to move the load to a desired position", as recited in claim 1. This argument is not convincing. Applicant should read Miller's column 1, lines 16-19, which states that "During manufacture, a manufacturer does not want to disturb a wafer in any fashion while **moving the wafer from station to station."** (Emphasis added). The moving wafer from station to station is moving wafer to a desired position as claimed. If the wafer must be moved to a desired position (or a desired station), then a motor control signal is required.

If that is insufficient, applicant is referred to the following US Patents:

3,569,718 (Borner)
3,579,071 (Drescher)
5,726,542 (Ebihara)
5,757,160 (Kreuzer)
6,281,643 (Ebihara)
6,650,079 (Binnard)

These patents all teach the positioning of wafer or wafer table in a semiconductor wafer handling machine by a positioning control signal.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication should be directed to Bentsu Ro at telephone number 571 272-2072.

8/4/2005

Bentsu Ro
Senior Examiner
Art Unit 2837